

551910

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
21 October 2004 (21.10.2004)

PCT

(10) International Publication Number  
**WO 2004/090833 A1**

(51) International Patent Classification<sup>7</sup>: **G08C 19/24**,  
H04B 3/54 // 1/56

(21) International Application Number:  
PCT/SE2004/000564

(22) International Filing Date: 7 April 2004 (07.04.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
0301131-9 14 April 2003 (14.04.2003) SE

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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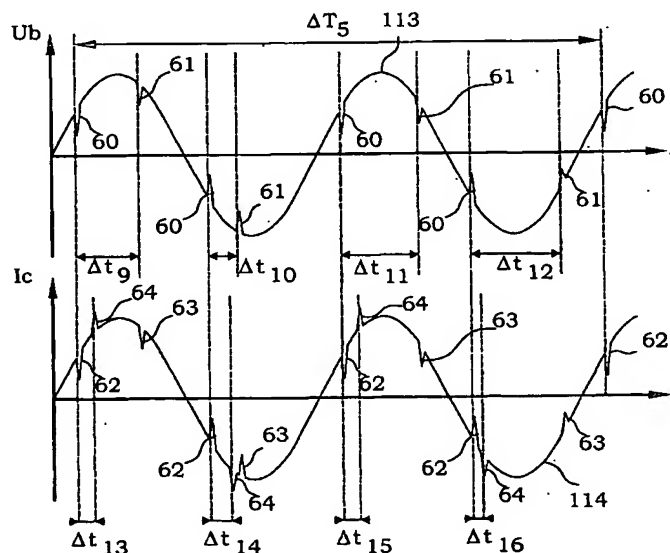
— of inventorship (Rule 4.17(iv)) for US only

Published:

— with international search report

[Continued on next page]

(54) Title: COMMON FIELD BUS FOR DATA AND ENERGY TRANSFER



(57) Abstract: Data communication in an electrical system uses the time difference between two successive current or voltage pulses to represent different data values. The time differences ( $\Delta t_9$ - $\Delta t_{16}$ ) can assume more than two different predetermined values, and thereby each pulse can represent more than one data bit. A central unit transfers data to a number of nodes by modulating voltage pulses onto a base voltage supplying power to the nodes. The time difference ( $\Delta t_9$ - $\Delta t_{12}$ ) between successive voltage pulses represents a data value. The nodes transfer data back to the central unit using current pulses, whereby the time difference ( $\Delta t_{13}$ - $\Delta t_{16}$ ) between the latest voltage pulse and the current pulse represents the data sent to the central unit. Data from two or more nodes are possible to transfer simultaneously without disturbing each other. The base voltage on the bus can be AC or DC.

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